

Minutes of the New Frontiers Phase A Concept Study Kick-Off Meeting
NASA Headquarters
August 17, 2004
9:00 AM
MIC 5A

The New Frontiers Phase A Concept Study Kickoff Meeting was convened at 9:05 a.m. by Andrew Dantzler.

Meeting Presenters included:

Andrew Dantzler/NASA HQ
Thomas Morgan/NASA HQ (New Frontiers Program Scientist)
Brad Perry/LaRC (New Frontiers Acquisition Manager)
Barry Geldzahler/NASA HQ
John Rummel/NASA HQ
Orlando Figueroa/NASA HQ
Darrell Foster/NASA HQ
Anita Krishnamurthi/NASA HQ

Dantzler Presentation – New Frontiers Program Management and Constraints

Andy Dantzler began the meeting with a welcome and congratulations, and he thanked the teams present for the submittal of their highly rated proposals.

Dantzler overviewed the plans for the Phase A Concept Studies. Phase A Concept Studies will be funded up to \$1.2M (RY). An evaluation will follow in which NASA intends to select one mission for follow-on funding.

The AO guidelines are still valid, and there will be other additional rules to come. Phase A projects should be aware no cost growth is allowed after Downselection. Projects that experience cost growth following Phase A are subject to cancellation. The cost cap for missions is \$700M (FY03), or a cost growth over the original proposal of 20%, whichever occurs first. The cost cap includes PSP and DAP, but not the extended mission (Phase F) if proposed. **[This information was subsequently changed to be consistent with the AO modification dated December 1, 2003 which states that Phase F, PSP, and/or DAP, if any of these are proposed, must be included in the estimate of NASA OSS Cost and will count against the cost caps.]** NASA will require a Confirmation Review at the end of Phase B.

The New Frontiers Program Office is located at Marshall Space Flight Center; however, the Program Office is partitioned away from all competitive efforts including the New Frontiers Phase A activities. There is one proposed New Frontiers mission to Jupiter and one to the Moon, and there are also other missions going to these same targets. We will not align any other missions with your proposed New Frontiers missions, and you cannot work with the former Code T in any way. These New Frontiers missions are entirely science justified on their own.

Dual compatibility with ELV's - The AO strongly suggested dual launch compatibility between the Atlas and Delta launch options and the former Code M has made it clear that they cannot promise that either launch option will be available in the future. It may cost too much to include dual launch compatibility in your Phase A Concept Studies. NASA will do what it can to keep both launch options open; however, the decision is not solely NASA's to make. Therefore, there is a better chance of a launch, once downselected, if your mission has dual launch vehicle compatibility.

Questions were asked to when NASA will know the specific launch vehicle. No specific timeline was provided; however, the decision is clearly anticipated post Phase A.

Congratulations again to the selected teams and good luck!

Question - What is the role of the New Frontiers Program Office after the mission is selected?

The Program Office will operate in the same manner as the Discovery Program Office located at JPL in the past. The Program Office will not sit on top to manage - the PI team runs their own project.

Question - Who will run the Program Office at MSFC?

Todd May and Rex Jeveden.

Morgan Presentation- Concept Study Overview

Tom Morgan stated that he is the Overall Chair of the Evaluation Team, and he outlined details for the Concept Study Reports (CSR's). Signed Originals and 60 copies plus 60 single-file, searchable CD's are required. Site visit details will be discussed by Mr. Perry.

The New Frontiers Program Library documents are important, as well as information on the New Frontiers Program Phase A Concept Study Home Page.

New Frontiers Program Library URL, <http://newfrontiers.larc.nasa.gov/newfrontiers/NFPL.html>, includes the updated document, *Criteria and Guidelines for the Phase A Concept Study* (paper copies to be handed out later during this meeting).

New Frontiers Program Phase A Concept Study Home page URL, <http://newfrontiers.larc.nasa.gov/newfrontiers/phaseAconceptstudy.html>, will include all pertinent information for the New Frontiers Phase A Concept Studies.

Proposal selection was based primarily on science criteria, and the science is not expected to change during Phase A; however, any changes to the original science must be highlighted in the CSR's.

Evaluation criteria for the Concept Study is detailed in the *Criteria and Guidelines for the Phase A Concept Study*. The AO is still in place, although E/PO will now be evaluated.

Total mission cost to NASA; equal to proposed cost and not evaluated. The Cost Cap is \$700M with no more than a 20% cost growth over the proposal round.

Communications after this kickoff meeting will be tightly controlled and POC's will be provided to work with the teams in specified areas. Mr. Perry will set up the site visits.

Perry Presentation- TMC Requirements

Brad Perry discussed the TMC requirements and distributed copies of the *Criteria and Guidelines for the Phase A Concept Study* and the list of POC's. All questions should go to Tom Morgan, preferably via email, and answers will be posted on the web site. Mr. Perry reviewed the POC list and stated that the POC individuals are a resource to the Concept Study. Appropriate Letters of Endorsement will be required in the CSR's

Question – Will POC-related information be posted to both Concept Study Teams?

No, sensitive areas unique to each team will not be posted. Only information affecting both teams will be posted.

Question - Is there a difference between the draft and this document for the Concept Guidelines?

Yes, there are substantial changes from the Feb. 2003 version. The August 14, 2004 edition is the version baselined for the Phase A Concept Studies.

Question – Is the August 14, 2004 edition the final version?

Yes, unless there is a need for a later revision. Revisions will be announced on the New Frontiers Program Phase A Concept Study Home Page.

There are three online pages that you need to be aware of:

1. The New Frontiers Program Acquisition Home Page;
2. The New Frontiers Program; and
3. The New Frontiers Program Phase A Concept Study Home Page.

Question - If any changes are made, will there be notification to the PI's via email?

Yes, but we will still post changes online so that the information is available to everyone.

Question – Is the Concept Study page link a sub-link?

No, it is a page in its own right. You can access any of the 3 pages from links on each of the 3 pages.

During selection, mission was selected primarily on your science. So do not change your science unless you feel it is necessary. If the science changes, another Science Panel evaluation of Science Merit will be required. This information was subsequently changed via the following announcement issued on August 23:

As an update to the discussion during the New Frontiers Phase A Concept Study Kickoff Meeting conducted on August 17, 2004, science merit will only be reevaluated during Phase A if it is degraded from the originally proposed science. Concept Study Teams are strongly encouraged to address proposal round scientific merit weaknesses wherever possible, but the science merit will not be reevaluated during Phase A unless it is degraded from that originally proposed.

The TMC Phase A Evaluation will look for good advancement and maturity in implementation details over what was originally submitted in the proposals. Complete details covering the areas of Science Investigation (highlight changes), Technical Approach, Management Plan, E/PO, Phase B Plan, Cost Plan for Phases A-E, Cost for Extended Mission Phase, PSP, and/or DAP, and the Required Appendices.

The CSR needs to be a stand-alone document – repeat the science as the TMC Panel will not go back to the original proposal to look at anything. Mr. Perry reviewed specific guidelines including page formats, contributions documented with signed endorsement, MDRA, and E/PO planning. Appendices other than those specified are not allowed. The latest guidelines should be used for Government provided services.

Question - Do we need 2 separate cost plans A-E, then F, PSP, and DAP?

Yes. **[This information was subsequently changed to be consistent with the AO modification dated December 1, 2003 which states that Phase F, PSP, and/or DAP, if any of these are proposed, must be included in the estimate of NASA OSS Cost and will count against the cost caps.]** Contribution endorsements are important. Be sure to include ELV and DSN endorsement letters.

Question – Will there be any changes to the launch vehicle costs?

Presently, there are no changes to the costs in the New Frontiers Program Library document *New Frontiers Launch Services Information Summary* that you previously used. We require a letter from KSC approving your ELV planning.

Question – Is there a full list of launch service “standard services”?

This information will be provided to both Concept Study Teams by Darrell Foster and Norm Beck.

Mr. Perry addressed international participation, cost growth, full cost accounting, long lead procurement needs, and the Confirmation Review. Endorsements are required from all organizations. If Downselected, everything remains as specified in the CSR.

Question – Concerning Letters of Endorsement, do we need new letters for people who have already endorsed themselves?

No. Use copies of the already existing letters if they are still applicable, but be sure to include all the new ones. Expect science team endorsements to carry over unless there are changes during Phase A.

CSR's are due on March 17, 2005 at NPRS by 4:30 EST. No late submissions or changes will be accepted. Submit the original plus 60 copies and 60 CD's in single file, searchable format.

The cost evaluation will be accomplished in the same manner as was done for the proposals. Mr. Perry showed the Cost Assessment pyramid and discussed the TMC Panel's cost evaluation methodology.

Site visits will be coordinated with Mr. Perry and are tentatively planned in the May 9-13 timeframe. Five days advance notice is planned for the written questions. Site visits will be scheduled for no more than 8 hours duration with the an additional hour for a site tour if applicable. The site visits will be standardized for both Concept Study Teams, and will be conducted in a plenary setting. The TMC Site Visit Team is anticipated to be rather large – 20+ individuals. Unless subsequently modified by NASA, the CSR as supplemented by the site visit information represents the scope of the TMC Phase A Evaluation. Forms B&C will be re-accomplished. Mr. Perry showed the Phase A Evaluation Flow Chart.

Question – How long will be PI Briefing to NASA be?

We have not yet set the schedule for the PI Briefings, perhaps an hour or possibly longer.

Question - When is Downselection date?

We anticipate late May early June 2005. It is basically a 2.5 to 3 month process after CSR submittal.

Barry Geldzehler Deep Space Network Presentation

DSN set the standards for world class.

Level I requirements reviewed – through 2030. S/X/Ka Band supported through 2010, but do not count on S Band. Getting forced out of using S Band. See how the President's vision for the lunar and mars mission goes.

Is the Ka up and down? It's downlink now. Have to see what the mission is driving us to. At the present time, there is no compelling reason to do an up link. However, if navigational precision or high data rate uploads are required, we will revisit the issue.

Charts will be available online.

Do not have to use the DSN for your mission, no obligation. Mission responsibility to fill the gaps if you don't use DSN. DSN can help.

Requirement for the DSN...

Risk reduction protocol

SLE Space Link extension (highly encouraged)

CCSDS File Directory

X Band is a workhorse. We do, however, encourage missions to go to Ka Band. X Band width is limited, but Ka Band is 500MHz wide. Only MRO and MTO are on the books for Ka Band at the moment. Hence, Ka band is virtually virgin territory, and you can get the whole thing. Spilling over into other bands is not allowed. Goal is to get back as much information as you can.

Described the Category A missions, i.e., those closer than 2 million km to Earth. These use different frequencies than deep space missions.

Multiple spacecraft for antenna. This is really just a two-channel receiver. If there are two spacecraft in the same ground antenna beam, then by using MSPA, they can dramatically cut DSN tracking time and hence cost to the mission. Anytime you can use MSPA it works to your advantage.

Encourage you to use VLBI (DDOR is VLBI)...three advantages [a] more precise navigation, [b] less DSN time required, [c] more cost effective.

Relay data [i.e., use MGS, Odyssey, or MRO as a relay satellite for Mars ground ops]. There are certain constraints: scheduling etc.

Coding - how you encode the data is extremely important. Old codes [i.e., MCD3] trying to do away with [unreliable and costly to maintain]...looking for standardization. Standard codes were shown [turbo code and LDPC are highly recommended].

Question - So are the blanks filled in the document?

Yes

Critical Event Communication...Critical Events need to be observed. Anytime the power is on, maneuvers, solar panels launched...etc. Sometime DSN can't cover...so mission would need to find something to see that it is covered. Must have forensic evidence so to speak.

Cover critical events that our contractors are responsible for. NASA launch mechanism is covered. "Launch" critical to "standard service" covered by KSC until separation.

Rummel Presentation – Planetary Protection Requirements

Article IX of Outer Space is applicable to both missions. The Treaty requires protection.

NASA policy on planetary protection:

NPD 8020.7F

8020.12 B

COSPAR applies too.

Moonrise looks like a Category I

Juno appears to be Category II

Dr. Rummel described the planetary protection categories. Indicate what your category will be, and then the steps applicable to your category. Document your planetary protection response in your CSR. Write Dr. Rummel a letter on what you plan to do, your anticipated Categorization, and how you plan to comply.

Question - Does planetary protection include orbital debris?

Planetary protection does not contain orbital debris.

Question - Is there a POC for Orbital debris?

Not for Phase A.

Foster Presentation – ELV Requirements

NASA Launch Services; I am representing Karen Poniatowski's office, HQ Launch Services. Norm Beck will continue to answer questions as the Launch Services Program POC. Launch Service Costs include Standard services there...if needed major development items work on it with Beck. Non-standard cost is on a case-by-case basis; work with Beck.

Flight Planning Board establishes the manifest. Identify and acquire new launch services. Several internal policies exist and NASA must follow, just to be aware. By the time of your flight, a lot of certification issues will likely be ironed out because of other flights that will occur. Take a look at 8610.24A.

These are likely both Category III payloads – must use certified ELV. We can perform special studies for you with funding from your project budget.

Complete launch service procurement by mission requirements – do not procure a specific launch vehicle.

Karen is the focal for all launch service...chair of Flight Planning Board.

ELV policies from within NASA.

NPD 8610.7, Risk mitigation policy

NPD 8610.23, Technical Oversight of Expandable Launch Vehicle Launch Services.

NPD 8610.24, ELV Launch services Pre-launch Readiness Reviews.

Manifesting Process - all NASA launched rockets. Requirements reviews risk, launch date, launch vehicle, launch service contract.

Serve as a host role for the processing. Launch Services Key Points. Commercially available launch services; it is more difficult to use foreign services. This should be a hand in hand, joint process. NASA has a generic list of included services. Payload processing is done commercially if possible.

Norm Beck will be firewalled from evaluators. The New Frontiers Program Library document, *New Frontiers Launch Services Information Summary*, has an evaluation sheet where you can see the required information.

Two performance classes: Intermediate and Heavy. Orbits and services needed tell us what you can do. Select the launch service based on that. The former Code M standpoint is to expect the Concept Study Teams to be dual compatible. Cannot guarantee what the future will hold.

Foreign Launch service are typically on a no funds basis. No nuclear payloads on foreign vehicles. Export control and policy transfers. Need to be consistent with the Risk Mitigation Policy. Dual compatibility with US services.

Services Package: Launch services, standard services, non-standard service, payload process, etc.

If nuclear, then spacecraft will likely process in government building. If not, then we are directed to go to commercial facility whenever possible.

Launch Services Program (Norm Beck) will serve as coordinator for all AO proposers.

Norm can provide typical mission integration timelines. This may be valuable to you.

Question - Is video of launch ascent "extra?"

Generally yes, though depending on how much video is required, it may or may not be adequately accounted for in launch service costs. Please discuss details with Norm Beck, and we can make a determination whether additional costs need to be incorporated into the budget or not.

Orlando Figueroa

Congratulations and let us begin the competition! Excited to kickoff the program and committed to making the program successful. Be realistic. We're used to MDEX, and Discovery, and this is a hugely different class. Hoping to have a New Frontiers AO cycle every 3 to 4 years.

Tom Morgan - Curation Requirements Presentation for M. Lindstrom

Curation requirements affect one mission here. Requirements - develop a plan, cleanliness, and interaction with curation staff. Catalog the samples for study. Curation costs must be budgeted at least two years before and two years after return.

Krishnamurthi Presentation – E/PO Requirements

Possibly heard this at the PPC, but here to repeat since Space Science takes it seriously. Efforts have increased in sophistication – E/PO program is mandatory.

Do not consider publicity (PR effort) as part of E/PO. Do not fund press releases with your E/PO money.

Next stage includes a full detail of E/PO plan. Explanatory guide (March 2004) specifies all the material that you need to meet. Materials are available on the web. Revised Criteria will apply to the NF mission. Quick Start guide for developing plan lists criteria in simple format.

Key issues for E/PO. Minimum is 1-2% of total mission. Please stick to the level of commitment that you decide on. E/PO program should highlight science and technical unique aspects. No vagueness. We look for direct involvement of the mission scientists and engineers. PI's do not have to do day-to-day E/PO responsibilities, but should be a part of implementation. Public likes to hear directly from the scientists. Effective partners, evaluation plan, design and implementation, and results. Usually 10% of E/PO budget is used to evaluate the results.

Formal schooling - material needs to be aligned with the state or national science standards. Working with underserved groups is highly considered. Plans to scale up the program or the potential to expand the scope of the program is rated highly.

E/PO references are all available on the web. Dr. Krishnamurthi handed out a book that lists all of the E/PO events that have taken place. Support Network - forum and brokers (focus regions in which they serve. Know local resources available...know contact information). Will not write your proposals. Consultation only.

Questions and Answers

Question - Funding of Phase A...what is the process, when will we find out?

We believe that the money (506 authority) has already gone to JPL.

Perry Comment – We are exploring a new regime here with \$700M PI-led missions. Comment on the TMC evaluation - During the proposal round you provided your final version in the submitted proposal. During Phase A, we accomplish site visits. The reason for the site visits is

to clarify all details as necessary. Make every effort to ensure everything is completely clear in your CSR's. Form B, C, and D (E/PO) will be accomplished during the Phase A Evaluation.

Question - For the site visit, are there any page limitations in answering the written questions?

We are looking for complete answers, just not a stack of paper. We will try to keep the questions to a minimum. We will only ask any questions where we will need answers, and where the answers make a difference.

Question - Is it reasonable to assume that the visits will be similar to what was done on Scouts and Discovery?

Yes, 8 hours with the Concept Study Team. Maybe an hour during lunch for the TMC Site Visit Team to have a private caucus. It will be similar to how it has been done in the past. A site visit tour, if applicable, may be added at a duration of 1 hour.

Site visits are tentatively planned in the May 9-13 timeframe. Mr. Perry inquired and confirmed that this timeframe was reasonable with both Concept Study Teams.

Question - Because of scope of these missions, would you consider longer than 5 days advance notice for the written questions?

We will look further into that and see what we can do. The written questions go through many rounds before they are submitted to the Concept Study Teams.

Question - When do you think the Downselection will be made?

We anticipate late May or early June. Selecting officials do not select until they are ready.

Question - Could the Downselection be very shortly after the orals?

Yes

Question - Who will be the selecting official?

Ghassem Asrar or Al Diaz. NASA is still in transformation, so we are not sure at this time.

Question – Five working days or 5 calendar days for the response time on the written questions?

-Calendar days.

Question - Would you consider instead of Tuesday/Thursday site visits maybe Tuesday/Friday, since many of us would like to support both Concept Study Teams? Or possibly Monday/Thursday?

We will consider your recommendation of Tuesday/Friday or Monday/Thursday, but we cannot make a decision on this now. The site visit schedule has a number of drivers in addition to the preference of the teams being visited.

Question - Do you have a perspective on the progress of full cost accounting as it applies to the New Frontiers Phase A Concept Studies?

It is a definite requirement. The NASA field centers are now applying cost accounting.

Once again congratulations and best wishes to both Concept Study Teams!!!

Meeting adjourned at 11:38 a.m.